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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/978,257	10/15/2001	Akira Yamauchi	S004-4419	4109

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EXAMINER

MULLINS, BURTON S

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 12/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/978,257

Applicant(s)

YAMAUCHI ET AL.

Examiner

Burton S. Mullins

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Specification

2. The specification is replete with 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: The meaning of "not identified with each other" on p.2, line 3, is not clear. On lines 6 and 11, "would generate" is not correct syntax. On line 18, "...to be solved how the vibration generated..." is not correct syntax. On line 20, "researches" should be replaced with ---attempts---. On p.3, line 22, change "Formulae" to --formulae--. On line 24, change "Formula" to --formula--. Applicant is requested to review the entire application and correct these and similar errors. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 1, "a magnetic force unbalance obtaining means for obtaining an unbalance of the magnetic force" is vague. What is a "magnetic force unbalance"? Is the "unbalance" itself a magnetic force? Is this a difference of magnetic forces? Can mechanical forces cause a "magnetic force unbalance"? Recitation "and to be applied to the rotor" is vague and lacks an antecedent. Recitation "magnetically support adjustment means" is vague. Should this be ---magnetic support adjustment means---? Recitation "resist the unbalance of the magnetic force" is vague for reasons noted above and also for the reason that it is not clear what "resist" in the context of magnetic forces means. Does this mean one magnetic force acts opposite to another, "unbalanced" magnetic force?

In claim 2, "wherein the predetermined position of the rotor may be the position obtained in the case where the rotor is rotated with the rotary axis of the rotor passing through the gravitational center of the rotor" and "through which the rotor is rotated for the variation of the air gap of the magnetic coils and the rotor" are examples of vague functional language.

In claim 4, functional recitations "for detecting the run-out in a radial direction of the rotor; and a first estimating means for estimating the run-out in the radial direction of the motor portion from the geometric positional relation among the radial direction sensor and the

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motor portion, and from the run-out in the radial direction of the rotor which is obtained by the radial direction sensor" and "for estimating the unbalance of the magnetic force acting on the rotor in the motor portion from the rotational angle of the magnetic poles, a magnetic field generated by the coil of the motor portion, and from the run-out of the motor portion in the radial direction interred by the first estimating means" are vague and indefinite.

In claim 7, recitation "a mechanism for controlling the magnetic force of the magnetic force supporting coils so that the vibration detected by the detecting means is reduced" is vague and indefinite functional language with no structural relationship to the claimed elements.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-7, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Barada (US 6,455,966) in view of Hamilton (US 4,629,262). Barada teaches a magnetic bearing apparatus comprising: a rotor 11 (Fig.2); a motor portion 13 provided in the rotor for rotating the rotor by a magnetic force (Fig.2); magnetically supporting coils 16a/16b for magnetically supporting the rotor in a radial direction in a predetermined position (Fig.2; c.4, lines 1-10); and a magnetically support adjustment means

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(compensating circuit 18B, feedback control process, c.5, lines 23-for adjusting the magnetic force of the magnetically supporting coils so as to resist the unbalance of the magnetic force.

Barada does not teach "a magnetic force unbalance obtaining means for obtaining an unbalance of the magnetic force generated in the motor portion by the rotor run-out in the radial direction from the predetermined position and to be applied to the rotor."

Hamilton teaches a position sensor for a magnetic suspension system including a feedback loop having an unbalance force obtaining means which derives a signal representative of the applied force (c.7, lines 58-59) and includes a force sensor 72 and a force command signal 74. Signals representative of the currents applied to the magnetic bearing coils and of the sensed force are used to derive the armature displacement signal by means of a control law. This permits replacement of inaccurate proximity transducers with an electrical circuit which is more accurate (c.1, line 43-c.2, line 3; c.4, lines 50-58).

It would have been obvious to one having skill in the art at the time of the invention to modify Barada and provide a force obtaining means per Hamilton since this would improve accuracy in the air gap measurement.

Conclusion

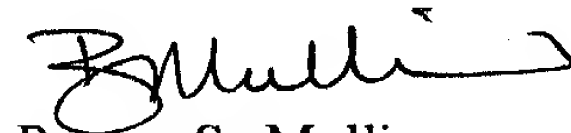
7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Burton S. Mullins whose telephone number is 305-7063. The examiner can normally be reached on Monday-Friday, 9 am to 5 pm. If attempts to reach the

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examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are 305-1341 for regular communications and 305-1341 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 308-0956.



Burton S. Mullins
Primary Examiner
Art Unit 2834

bsm

December 17, 2002